Further, a discharge lamp according to the present invention comprises a translucent tube having sealing portions formed at its both ends, a discharge medium including rare gas filled in the translucent tube, a first feeding lead wire sealed penetrating airtight one of the sealing portions of the translucent tube, an inner electrode provided at an end of the first feeding lead wire, and an outer electrode composed of a linear conductor which is spirally wound around the translucent tube for almost entire length in an axial direction of the tube and an end of which is connected to a second feeding lead wire, wherein the outer electrode is provided with a tube power increasing means a ta portion facing a disturbed diffused positive column or a constricted positive column generated in the translucent tube when the discharge lamp is in operation.

Further, a liquid crystal backlighting device according to the present invention comprises a main body of the liquid crystal backlighting, a fluorescent lamp arranged in the main body and a lighting circuit to operate the fluorescent lamp.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view of a fluorescent lamp showing a first embodiment according to the present invention;

FIG. 2 is a diagram showing a vertical sectional view of the fluorescent lamp shown in FIG. 1 and showing a

structure with a lighting circuit;

FIG. 3 is an enlarged side view of the fluorescent lamp shown in FIG. 1;

FIG. 4 is a graph showing a relation between a w x n value and a lowest tube voltage Vrms of an outer electrode 16 in the fluorescent lamp according to the present invention;

FIG. 5 is a graph showing a relation between a w x n value and a tube wall temperature T of an outer electrode in the fluorescent lamp according to the present invention;

FIG. 6 is a vertical sectional view showing the fluorescent lamp in a second embodiment according to the present invention;

FIG. 7 is a graph showing a luminance intensity distribution in an axial direction of the fluorescent lamp shown in FIG. 6 by comparing with that of the fluorescent lamp shown in FIG. 1;

FIG. 8 is a side view showing the fluorescent lamp in a third embodiment according to the present invention;

FIG. 9 is a vertical sectional view showing the fluorescent lamp in the third embodiment according to the present invention;

FIG. 10 is a sectional diagram showing a constricted positive column and a diffused positive column generated when the fluorescent lamp according to the present invention described is turned on and a graph showing a

distribution of winding pitches and luminance in a longitudinal direction of a discharge lamp;

FIG. 11 is a diagram showing a fourth embodiment according to the present invention, wherein (a) in FIG. 11 is a vertical sectional view of the fluorescent lamp and (b) is a graph showing the distribution of the winding pitches of the outer electrode;

FIG. 12 is a sectional view of essential portions showing an embodiment according to the present invention applied to a liquid crystal display backlighting device.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Preferred embodiments according to the present invention will be described below in detail referring to the drawings.

FIG. 1 is a side view showing a structure of a fluorescent lamp according to the present invention and FIG. 2 is a vertical sectional view showing the fluorescent lamp including a lighting circuit.

As shown in these diagrams, the fluorescent lamp according to the present invention has a glass tube 11 which functions as a luminous tube. The glass tube 11 are sealed airtight at both sides where sealing portions 12a, 12b are formed. A phosphor film 13 is formed on an inner surface of the glass tube 11.